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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,438	01/31/2001	Dennis L. Salbilla	P02104US0/10100157	3287

7590

07/26/2006

Edmonds, P.C.
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EXAMINER

CHORBAJI, MONZER R

ART UNIT	PAPER NUMBER
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1744

DATE MAILED: 07/26/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/773,438

Applicant(s)

SALBILLA, DENNIS L.

Examiner

MONZER R. CHORBAJI

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 May 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,5,6,14,15,27 and 29-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,6,14,15,27 and 29-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

This final action is in response to the communication received on 05/10/2006

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 33 and 39 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

In claim 33, applicant recites terminating the electric charge to the process components after the process run. The disclosure does not teach such a step.

In claim 39, applicant recites stopping the flow of the liquid hydrocarbon process stream prior to stopping the application of the electric charge. The disclosure does not teach such a step.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 32 and 35-37 are rejected under 35 U.S.C. 102(b) as being anticipated by Carson (U.S.P.N. 4,505,758).

Regarding claim 32, Carson discloses a method for processing a liquid hydrocarbon process stream (col.2, lines 12-15 and lines 56-60) that includes the following: initiating a process run of a liquid hydrocarbon process stream through a heat exchanger, which is capable of exchanging heat with the process stream (in col.2, lines 56-60 where Carson applies electric charge to heat exchangers in the field of oil refineries where the flow of a liquid hydrocarbon process stream has been initiated), initiating an electric charge to process components (in col.3, lines 63-68 and col.4, lines 1-7, Carson provides an example of applying electrical charge to a heat exchanger receiving hydrocarbon liquid stream after being processed by hydrocracking apparatus), flowing the liquid hydrocarbon process stream through a heat exchanger (see col.3, lines 63-68 and col.4, lines 1-7 where liquid hydrocarbon product is flowing through a heat exchanger) having the electric charge applied thereto and while flowing the liquid hydrocarbon process stream continually apply constant electric charge (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is continually applied over a time interval of less than 5 minutes) to a heat exchanger.

Regarding claims 35-37, Carson teaches applying electric current to the chassis (figure 1:1 and 14 where the inlet header box is the supporting frame for the heat exchanger) or to the shell of a heat exchanger (figure 1, 4 and 13).

Claim Rejections - 35 USC § 103

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5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 33 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson (U.S.P.N. 4,505,758).

Regarding claim 33, Carson teaches applying electric current intermittently while simultaneously passing hydrocarbon fluid (col.6, lines 10-15) in petrochemical plants that intrinsically run various processes (col.2, lines 56-60). Carson does not explicitly teach intermittently applying electric current to heat exchangers in a petrochemical plants before or during or after a certain refining process. However, since Carson teaches treating heat exchangers in a petrochemical plant without interrupting the plant operations (col.2, lines 27-32), then Carson intrinsically teach applying the electric current to heat exchangers before or during or after any refining process.

Regarding claim 39, Carson teaches that in petrochemical plants it is known to shut down the plants once a year for maintenance and repair (col.1, lines 38-40). Also,

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Carson teaches applying electric current intermittently while simultaneously passing hydrocarbon fluid (col.6, lines 10-15) in petrochemical plants that intrinsically run various processes (col.2, lines 56-60). As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to maintain applying electric currents intermittently to heat exchangers briefly after shutting down the plant for yearly repair in order to insure that all coronene deposits (col.4, lines 8-10) have been removed.

8. Claims 1, 5-6, 27, 29-31, 34 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson (U.S.P.N. 4,505,758) in view of Harms (U.S.P.N. 3,933,606).

Regarding claim 1, Carson discloses a method (col.2, lines 12-15) for reduction of fouling of process components with a liquid hydrocarbon stream oil refining plants (col.2, lines 56-60 and col.4, lines 8-11) that includes applying a continual electric charge (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is constant and is continually applied over a time interval of less than 5 minutes) to an object (coronene) within the flow path of the liquid hydrocarbon stream by flowing the stream past the continual electric charge. In addition, Carson applies electric charge while flowing the hydrocarbon streams. Carson fails to teach the step of adjusting the magnitude of the continual electric charge. Harms, which is in the art of treating contaminated water by electrolytically removing suspended and dissolved impurities, teaches that it is known to vary the magnitude of the electrical charge applied to the fluid in order to affect a desired degree of contaminant removal depending upon the composition of the water being treated (col.5, lines 57-61). Therefore, it would have been obvious to one of

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ordinary skill in the art at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

Regarding claim 27, Carson discloses a method (col.2, lines 12-15) for cleaning heat exchangers in oil refining plants (56-60) including applying a continual electric charge (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is constant and is continually applied over a time interval of less than 5 minutes) to an object (coronene) within the flow path of the liquid hydrocarbon stream by flowing the stream past the continual electric charge. Carson applies continual constant electric charge to heat exchangers in the field of oil refineries such that the steps and apparatuses involving catalytically cracking and subsequent processing of crude oil are all intrinsic features of refineries that result in an improved hydrocarbon processing efficiency. In addition, Carson applies electric charge while flowing the hydrocarbon streams. Carson fails to teach the step of adjusting the magnitude of the continual electric charge. Harms, which is in the art of treating contaminated water by electrolytically removing suspended and dissolved impurities, teaches that it is known to vary the magnitude of the electrical charge applied to the fluid in order to affect a desired degree of contaminant removal depending upon the composition of the water being treated (col.5, lines 57-61). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment

step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

Regarding claim 29, Carson discloses a method (col.2, lines 12-15) for cleaning heat exchangers in oil refining plants (56-60) that results in preventing fouling of liquid hydrocarbon process streams (col.4, lines 8-11) that includes the following: initiating a constant electric charge (col.2, lines 18-21) to liquid hydrocarbon process streams having contaminants (col.4, lines 8-11) flowing through a heat exchanger, initiating a flow of the liquid hydrocarbon stream past the electric charge applied to a heat exchanger (in col.3, lines 63-68 and col.4, lines 1-7, Carson provides an example of applying electrical charge to a heat exchanger receiving hydrocarbon liquid stream after being processed by hydrocracking apparatus) and continuously applying the electric charge to the flowing liquid hydrocarbon stream (Carson teaches flowing the liquid hydrocarbon process stream through a heat exchanger, see col.3, lines 63-68 and col.4, lines 1-7 where liquid hydrocarbon product is flowing through a heat exchanger by having a constant electric charge applied thereto and while flowing the liquid hydrocarbon process stream continuously apply constant electric charge (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is continuously applied over a time interval of less than 5 minutes). Carson fails to teach the step of adjusting the magnitude of the electric charge. Harms, which is in the art of treating contaminated water by electrolytically removing suspended and dissolved impurities, teaches that it is known to vary the magnitude of the electrical charge applied to the fluid in order to affect a desired degree of contaminant removal depending upon the composition of the

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water being treated (col.5, lines 57-61). As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

Regarding claims 5-6 and 30-31, Carson discloses applying an electric charge to a heat exchanger (abstract) and applying a continual electric charge (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is constant and is continually applied over a time interval of less than 5 minutes) to the shell of a heat exchanger (figure 1, 4 and 13-14).

Regarding claims 34 and 38, Carson teaches applying a constant electric charge while flowing the hydrocarbon streams, but fails to teach the step of adjusting the magnitude of the electric charge. Harms teaches that it is known to vary the magnitude of the electrical charge applied to the fluid in order to affect a desired degree of contaminant removal depending upon the composition of the water being treated (col.5, lines 57-61). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

9. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson (U.S.P.N. 4,505,758) in view of Harms (U.S.P.N. 3,933,606) as applied to claim 1 and further in view of Sivavec et al (U.S.P.N. 6,451,210).

Regarding claims 14-15, both Carson and Harms fail to disclose a step for determining the level of the contaminants in the liquid hydrocarbon stream. Sivavec teaches the use of a sensing module to detect the level of contaminants in such streams. Sivavec further teaches that once the concentration has been determined the liquid is passed to an adsorption zone, which can include a filter or precipitation unit. A turbidity-sensing unit can be used to direct an aqueous VOC stream to a filter or precipitation unit, prior to carbon bed treatment. Other treatment processes include ion exchange beds, air stripping columns and filters (col.2, line 30 to col.3, line 25). This reference has been relied upon to teach that it is known to measure the concentration of contaminants prior to treatment in order to determine the correct type of treatment. As a result, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Carson method by including a step of measuring the contaminant concentration in the fluid stream in order to determine the correct treatment parameters as taught by Sivavec.

Remarks

10. The objection to claims 29, 30, 32-35 and 38 issued in office action dated 01/10/2006 has been withdrawn. In addition, the 112, paragraph I rejection issued in office action dated 01/10/2006 with regard to claims 29 and 32 has also been withdrawn since upon further consideration, in light of the specification as a whole, one of ordinary skill in the art would recognize that the inventor had possession of a continuous or continual electric charge during the flowing step of the claimed invention at the time of

invention. As a result, of withdrawing 112, paragraph I rejection, 112, paragraph II has also been withdrawn.

Response to Arguments

11. Applicant's arguments filed 05/10/2006 have been fully considered but they are not persuasive.

On bottom of page 7 to the top of page 8 of the Remarks section, applicant argues that, "Carson discloses a process for heating selected portions of a cooler for short periods of time, i.e. intermittent time intervals of less than 5 minutes as noted by the examiner, not a continual or constant application of electric current." The examiner disagrees. Carson applies constant or continual or continuous electric current during a time interval (in col.2, lines 18-20 and col.3, lines 59-62 where electric current is continually applied over a time interval of less than 5 minutes) to a heat exchanger. The instant claims do not disclose a time range for applying the current. In addition, Carson discloses a method (col.2, lines 12-15) for reduction of fouling of process components with a liquid hydrocarbon stream oil refining plants (col.2, lines 56-60 and col.4, lines 8-11).

On page 8 of the Remarks section, applicant argues that, "Harms does not teach, show or suggest processing a hydrocarbon. Water and hydrocarbon are completely different in terms of polarity, physical properties, volatility and flammability, just to name a few significant differences." The examiner disagrees since both Carson and Harms are in the art of treating contaminated fluids and both are trying to achieve the same goal, which is purifying fluids through the use of applying electric field. With regard to

chemical differences between water and hydrocarbon fluids, one of ordinary skill in the art upon reading Carson and Harms would recognize the obvious need, if any, to accommodate for modification in applying the electrical field. Clearly, one having ordinary skill in the art upon reading Carson and Harms would have been motivated at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

On page 9 of the Remarks section, applicant argues that, "In fact, a magnitude adjustment step in Carson would have no effect on Carson's process of melting accumulated paraffins, which are non-polar. The examiner is kindly reminded that electric charge is not synonymous and is not interchangeable with voltage and/or current." The examiner disagrees. Both Carson and Harms apply electric current that creates electric field having electric charge such that one having ordinary skill in the art upon reading Carson and Harms would have been motivated at the time the invention was made to modify Carson process by including an electric charge magnitude adjustment step as taught by Harms in order to affect a desired degree of contaminant removal in the fluid being treated (col.5, lines 57-61).

Conclusion

12. THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

13. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

15. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

16. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


GLADYS JP CORCORAN
SUPERVISORY PATENT EXAMINER

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Monzer R. Chorbaji

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MRC